

ABSTRACT

The glycoprotein hormone hCG is normally produced by human placenta and frequently associated with some particular neoplasms. In hydatidiform mole, a disease of the placental trophoblastic cells, produces the hormone which has been found by many investigators, not identical in some biochemical properties and distinct from normal pregnant hCG. The present investigations were undertaken to explore the correlation between the biochemical differences and sialic acid contents in the hCG molecules. Attempts were also made to localize specifically if either individual or both subunits of hormone devoids of the sialic acid.

Techniques have been developed for dissociation and purification of both normal and molar hCG-subunits and for quantitation of sialic acid by using fluorimetric determination of formaldehyde equivalently released from sialic acid. Compare to the values of sialic acid content in standard hCG (CR-123), 5 from 7 of molar hCGs had lower sialic acid content and the results paralleled to their slower electrophoretic mobilities. Analyses of sialic content in such individual molar hCG-subunit indicated that the molar α -subunit contained approximately equal amount of sialic acid content whereas the molar β -subunit appeared to contain significantly lower amount than normal.

Some of molar hCGs (2 from 7) which equally migrated in electrophoretic mobility to standard hCG were observed to have sialic acid

content in both intact molecule and subunits nearly the same as of standard hCGs.

These studies provide direct chemical evidence of correlation of sialic acid content to the molecular negative charge of hCG.